REMARKS

Claims 1-31 remain present in this application.

Claims 1 and 14 have been amended. Reconsideration of the application, as amended, is respectfully requested.

Amendments to the Claims

Support for the amendments to claims 1 and 14 can be found in originally filed Fig. 3 and its related description on pages 7-10 of the originally filed specification. It is therefore respectfully submitted that no new matter has been added.

Rejections under 35 USC 102

Claim 1 stands rejected under 35 USC 102(b) as being anticipated by Reams, U.S. Patent 4,325,394. This rejection is respectfully traversed.

Claim 1 stands rejected under 35 USC 102(b) as being anticipated by To Yoichi, Japanese document 10-027741. This rejection is respectfully traversed.

Claim 1 stands rejected under 35 USC 102(e) as being anticipated by Ching et al, U.S. Patent 6,797,075. This rejection is respectfully traversed.

It is noted that independent claim 1 recites (emphasis added):

> 1. An apparatus for removing metal from a wafer edge, comprising:
> a bath tank containing a chemical bath;
> **a rotatable wafer chuck holding a wafer vertical to the chemical bath, wherein at least an edge portion of the wafer is covered with a metal layer**; and
> a sliding element disposed on one end of the rotatable wafer chuck such that the rotatable wafer chuck is removable in a

vertical direction to the chemical bath and **only the edge portion of the wafer is immersed in the chemical bath.**

It is respectfully submitted that the documents to Reams, To Yoichi and/or Ching et al. fail to teach or suggest **a rotatable wafer chuck holding a wafer vertical to the chemical bath, wherein at least an edge portion of the wafer is covered with a metal layer**, or **only the edge portion of the wafer being immersed in the chemical bath,** as is recited in independent claim 1. Accordingly, it is respectfully submitted that the prior art utilized by the Examiner fails to teach or suggest the apparatus of independent claim 1. Reconsideration and withdrawal of the 35 USC 102(b) and 102(e) rejections are respectfully requested.

Rejections under 35 USC 103

Claims 1-13

Claims 2-13 stand rejected under 35 USC 103 as being anticipated by Reams, Ching et al., or To Yoichi, in view of Berdan et al., U.S. Patent 3,898,095. These rejections are respectfully traversed.

As is discussed above, the documents to Reams, To Yoichi and/or Ching et al. fail to teach or suggest **a rotatable wafer chuck holding a wafer vertical to the chemical bath, wherein at least an edge portion of the wafer is covered with a metal layer**, or **only the edge portion of the wafer being immersed in the chemical bath,** as is recited in independent claim 1. The Examiner's attention is drawn to page 10 of the specification, wherein these features are discussed in connection with selectively removing metal layers formed at the edge portion of a wafer to reduce a possible particle source to the sequential processing thereof. The secondary

reference to Berdan et al. fails to overcome the above-noted deficiencies. Accordingly, it is respectfully submitted that the prior art utilized by the Examiner fails to teach or suggest the apparatus of independent claim 1, as well as its dependent claims.

Claims 14-31

Claims 14, 15, (23:Ching), 24, 26, and 29-31 stand rejected under 35 USC 103 as being anticipated by Reams or Ching et al., in view of Brown et al., U.S. Publication 2003/0209255. This rejection is respectfully traversed.

Claims 14, 15, 24 and 26-31 stand rejected under 35 USC 103 as being anticipated by To Yoichi in view of Brown et al. This rejection is respectfully traversed.

Claims 16-22 stand rejected under 35 USC 103 as being anticipated by Reams, Ching et al. or To Yoichi in view of Brown et al., and further in view of Berdan et al. This rejection is respectfully traversed.

Claim 25 stands rejected under 35 USC 103 as being anticipated by Reams and Ching et al., and further in view of Erk et al., U.S. Patent 5,593,505. This rejection is respectfully traversed.

It is noted that independent claim 14 recites (emphasis added):

> 14. A method for removing metal from a wafer edge, comprising the steps of:
> providing a wafer with a metal layer at least covering an edge portion thereof;
> **vertically immersing only the edge portion of the wafer into a chemical bath for etching the metal layer**; and
> **rotating the wafer to remove the metal layer at only the edge portion from the surface and the edge thereof.**

Under MPEP 2143, to establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Independent claim 14 recites a combination of steps including "**vertically immersing only the edge portion of the wafer into a chemical bath for etching the metal layer**" and "**rotating the wafer to remove the metal layer at only the edge portion from the surface and the edge thereof**". It is respectfully submitted that the prior art utilized by the Examiner, either alone or in combination, fails to teach or suggest these limitations of independent claim 14.

With regard to the primary references utilized by the Examiner, it is noted that the submersible motor chemical processing apparatus of Reams entirely immerses a wafer (see Fig. 1 and column 5, lines 24-52) with an etchant mixture to etch silicon wafers (see column 5, lines 9-24). Ching et al. also teaches an apparatus for processing a wafer by entirely immersing the wafer into a stripping chemical (see Figs. 1, 3B, 4B, 5B, and 6B). To Yoichi also teaches a method for treating a wafer with chemicals by entirely immersing a wafer into a solution (see Fig. 2).

With regard to the secondary references utilized by the Examiner, it is noted that Brown et al. teaches a method for cleaning a backside of a wafer by a scrubbing device, but requires no chemical bath (see Fig. 1).

Accordingly, it is respectfully submitted that neither Reams, Ching et al, To Yoichi, nor Brown et al., either alone or in combination, teaches or suggests **vertically immersing only the edge portion of the wafer into a chemical bath for etching the metal layer** and **rotating the wafer to remove the metal layer at only the edge portion from the surface and the edge thereof**, whereby metal layers formed at the edge portion of a wafer are selectively removed to

reduce a possible particle source to the sequential processing thereof as is discussed on page 10 of the specification, for example. The additional secondary references to Berdan et al. and Erk fail to overcome the deficiencies of the primary references.

Accordingly, it is respectfully submitted that the prior art utilized by the Examiner fails to teach or suggest the method of independent claim 14, as well as its dependent claims, and reconsideration and withdrawal of the 35 USC 103 rejections are therefore respectfully requested.

Conclusion

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

Because the additional prior art cited by the Examiner has been included merely to show the state of the prior art and has not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time.

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: February 16, 2006

Respectfully submitted,

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